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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BURCH, MELODY M

ART UNIT PAPER NUMBER

3683

DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/925,774

Applicant(s)

BELL ET AL.

Examiner

Melody M. Burch

Art Unit

3683

**– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 January 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2,3,5-10,13-18 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,3,5-10,13-18 and 21-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 2, 3, 5-7, 13, 14, 15, 18, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5091679 to Murty et al.

Re: claims 2, 3, 5, 13, and 18. Murty et al. show in figures 1, 2, and 4 a vehicle suspension assembly comprising: a shock absorber comprising a magnetized (rotary) plunger 12, a conductive coil 14a,b,c disposed about the magnetized plunger, forming a circuit, a vehicle support 5 attachable to a wheel 4 with one of the magnetized plunger and the coil (particularly the magnetized plunger) fixed to move with the vehicle support and the coil being selectively actuated to provide a magnetized force resisting movement of the vehicle support as disclosed in col. 2 lines 15-18, the magnetized plunger for generating a current in the coil by the movement of the magnetized plunger, and a battery 16 in communication with the circuit.

Re: claims 6 and 14. Murty et al. show the limitation of the battery storing electric energy generated by the movement of the magnetized plunger relative to the coil. See col. 1 lines 49-51, col. 2 lines 44-46, and col. 6 lines 4-6 of Murty et al.

Re: claims 7 and 15. Murty et al. show the limitation of the circuit comprising a switching circuit 20,22,24,26,28,30. See figure 4 of Murty et al.

Art Unit: 3683

Re: claim 21. Murty et al. show in the Murty reference the limitation wherein the control 44 determines when to charge the battery based on a level of movement of the vehicle support since as shown in figure 7 of Murty et al. and as disclosed in col. 4 line 53 – col. 5 line 15 and in col. 1 lines 49-51 and in col. 2 lines 44-46 it is shown that the system is in motor mode or generator mode depending on the speed and direction of actuator which is connected to the wheel.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murty et al. in view of US Patent 3513408 to McGee.

Murty et al., as modified, describe the invention substantially as set forth above, including the use of a switching circuit but does not specifically disclose or show that the switching circuit includes a field effect transistor.

McGee teaches in figure 2 the use of a magnetized plunger/conductive coil apparatus comprising a switching circuit including a field effect transistor 11.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching circuit of Murty et al., as modified, to have included a field effect transistor, as taught by McGee, in order to provide a device

Art Unit: 3683

that occupies minimum real estate and that provides the advantage of a fast response time.

5. Claims 9, 10, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murty et al. in view of US Patent 5390121 to Wolfe.

Murty et al. describe the invention substantially as set forth above in the rejections of claims 5 and 15 above, but do not include the limitation of the switching circuit being configured to switch at a higher frequency than the frequency of movement of the magnetized plunger.

Wolfe teaches in figure 1 and in lines 1-4 of the abstract the use of a switching circuit 60, controller, 32 being configured to switch at a higher frequency than the frequency of movement of a moving member 22.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the frequency of switching of the switching circuit of Murty et al. to have been higher than the frequency of movement of the moving member (or the magnetized plunger in the case of Murty et al.), as taught by Wolfe, in order to provide a means of enabling the active suspension system to quickly adapt to changing conditions as taught by Wolfe in col. 4 lines 36-38.

6. Claims 2, 3, 5-7, 13-15, 18, 22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-4300709 in view of US Patent 5091679 to Murty et al.

Re: claims 2, 3, 5, 13, 15, 18, 22, and 24. JP '709 shows in figure 1 a vehicle suspension assembly comprising a shock absorber comprising a magnetized plunger 14, a conductive coil 15 disposed about the magnetized plunger, forming a circuit, and a

vehicle support 13 attachable to a wheel 22 with one of the magnetized plunger and the coil (particularly the magnetized plunger) fixed to move with the vehicle ground support and the coil being selectively actuated to provide a magnetized force resisting movement of the vehicle support as disclosed in col. 2 lines 20-23 (based on consultation with Japanese translator) and as suggested in lines 1-10 of the English abstract by the discussion of the suspension control being active.

JP '709 describes the invention substantially as set forth above, but does not include the limitation of a battery being in communication with the circuit.

Murty et al. teach in figure 4 the use of a shock absorber comprising a magnetized element 12 and a conductive coil 14a-14c forming a circuit, the shock absorber including a battery 16 in communication with the circuit.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the circuit of JP '709 to have included communication with a battery, as taught by Murty et al., in order to provide a means of conserving energy for later use by electrical apparatuses of the vehicle.

Re: claims 6, 14. JP '709 describes the invention substantially as set forth above, but does not include the limitation of storing in a battery energy generated by the movement of the magnetized plunger relative to the coil.

Murty et al. teach in col. 1 lines 49-51 and in col. 2 lines 44-46 the use a battery for storing electric energy generated by the suspension movements. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the circuit of JP '709 to have included communication with a battery that

Art Unit: 3683

stores electric energy generated by the movement of the plunger relative to the coil, as taught by Murty et al., in order to provide a means of conserving energy for later use by electrical apparatuses of the vehicle.

Re: claim 7. JP '709, as modified, shows in JP '709 the circuit comprising a switching circuit 16.

7. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-4300709 in view of Murty as applied to claims 7 and 15 above, and further in view of US Patent 3513408 to McGee.

JP '709, as modified, describes the invention substantially as set forth above, including the use of a switching circuit 16, but does not specifically disclose or show that the switching circuit includes a field effect transistor.

McGee teaches in figure 2 the use of a magnetized plunger/conductive coil apparatus comprising a switching circuit including a field effect transistor 11.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching circuit of JP '709, as modified, to have included a field effect transistor, as taught by McGee, in order to provide a device that occupies minimum real estate and that provides the advantage of a fast response time.

8. Claims 9, 10, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-4300709 in view of US Patent 5390121 to Wolfe.

Re: claims 9 and 23. JP'709 describes the invention substantially as set forth

Art Unit: 3683

above in the rejections of claims 5 and 13 above with the exception of the limitation of a battery, but do not include the limitation of the switching circuit being configured to switch at a higher frequency than the frequency of movement of the magnetized plunger.

Wolfe teaches in figure 1 and in lines 1-4 of the abstract the use of a switching circuit 60, controller, 32 being configured to switch at a higher frequency than the frequency of movement of a moving member 22.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the frequency of switching of the switching circuit of Murty et al. to have been higher than the frequency of movement of the moving member (or the magnetized plunger in the case of Murty et al.), as taught by Wolfe, in order to provide a means of enabling the active suspension system to quickly adapt to changing conditions as taught by Wolfe in col. 4 lines 36-38.

Re: claim 10. JP '709, as modified, shows in JP '709 a shock absorber wherein a control 16 and sensor disclosed in col. 2 lines 20-23 senses movement of the vehicle ground support and selectively activates the coil when it is desired to resist movement of the vehicle ground support.



9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP-4300709 in view of Murty et al. as applied to claim 15, and further in view of US Patent 5390121 to Wolfe.

JP '709 describes the invention substantially as set forth above, but does not include the limitation of the switching circuit switching at a higher frequency than the frequency of movement of the magnetized plunger.

Wolfe teaches in figure 1 and in lines 1-4 of the abstract the use of a switching circuit 60, controller,32 being configured to switch at a higher frequency than the frequency of movement of a moving member 22.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the frequency of switching of the switching circuit of Murty et al. to have been higher than the frequency of movement of the moving member (or the magnetized plunger in the case of Murty et al.), as taught by Wolfe, in order to provide a means of enabling the active suspension system to quickly adapt to changing conditions as taught by Wolfe in col. 4 lines 36-38.

### ***Response to Arguments***

10. Applicant's arguments filed 1/21/05 have been fully considered but they are not persuasive.

Applicant argues that Murty et al. fail to show both a magnetized plunger and a conductive coil disposed about the magnetized plunger. Examiner maintains that Murty et al. show in figure 4 the limitation of a magnetized plunger 12 and a conductive coil 14a,b,c disposed about the plunger. Examiner maintains that rotating element 12 of

Art Unit: 3683

Murty et al. may be considered to be a plunger to the same extent as rotating element 44 of US Patent 4412321 to Tokumitsu et al. is considered to be a plunger. Examiner emphasizes that Tokumitsu et al. is used solely for the purpose of showing that rotating elements can also be described as plungers. Examiner also notes that Webster's Collegiate Dictionary 10<sup>th</sup> Edition defines a plunger as "a sliding reciprocating piece...". Examiner notes that element 12 of Murty et al. slides in a rotary fashion in both clockwise and counter clockwise directions.

Applicant also argues on pg. 10 of the remarks that speed and direction are not a level of movement. Examiner notes that speed is the time rate of change of displacement or movement and, thus, represents a level or degree of movement.

Applicant requests support for the statement "...it is within the knowledge generally available to one of ordinary skill in the art that field effect transistors provide the advantage of a fast response time". Examiner notes that US Patent 4978925 to Dingwall teaches in col. 2 lines 12-16 the limitation of a field effect transistor providing the advantage of a fast response time. Examiner notes that equipping the device of Murty et al. with a fast response time would provide more accurate active control.

With regards to the Wolfe reference, Applicant argues that there is no mention in Murty et al. that it could benefit from the hydraulic circuit of Wolfe. Examiner notes that Wolfe is not used for the teaching of a hydraulic circuit but for the teaching of a switching circuit being configured to switch at a higher frequency than the frequency of movement of a moving member. Wolfe teaches the use of a switching circuit 32,54,60 being configured to switch at a higher frequency than the frequency of movement of a

moving member 22. Examiner maintains that such a modification would enable the active suspension system of Murty et al. to quickly adapt to changing conditions as taught by Wolfe in col. 4 lines 36-38.

With regards to the rejection of JP'709 in view of Murty et al., Examiner maintains that Murty et al. teach the limitation of a battery 16 in communication with a conductive coil 14a-c as shown in figure 4 of Murty et al. Examiner further maintains that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the circuit of JP'709 to have included a battery in communication with the circuit, as taught by Murty et al., in order to provide a means of energizing the conductive coil, as taught by Murty et al., in col. 5 lines 53-55 and to provide a recharging means that would allow energy to be conserved and used by the electrical apparatus of the vehicle as described in col. 1 lines 51-52.

### ***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 3683

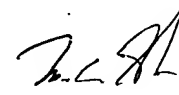
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melody M. Burch whose telephone number is 703-306-4618. The examiner can normally be reached on Monday-Friday (7:30 AM-4:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on 703-308-0830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*mmb* 3/21/05  
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March 21, 2005

  
3/24/2005  
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PRIMARY EXAMINER  
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